Public attitudes to nanotechnology: Lessons for regulators

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New technologies may change our lives for the better, but sometimes they have risks. Communicating those benefits and risks to the public, and developing regulations to deal with them, can be difficult -- particularly if there's already public opposition to the technology.

A new study that provides an overview of research on public perceptions of nanotechnology challenges some current ideas of how people view the risks and benefits of new technology. The work has implications for how policymakers talk about and regulate new technologies.

Public views on nanotechnology, which could revolutionize medicine, electronics and energy technology, but has possible health and environmental risks, are overwhelmingly favorable, the study found. However many people hadn't heard of nanotechnology, and nearly half those surveyed in North America, Europe and Japan weren't sure what they thought of it. It's reassuring that those people haven't made hasty judgments, the authors say, but that means that bungled attempts to educate the public about nanotechnology, or to regulate it, could turn public opinion against this promising technology.

"If you only talk about benefits it doesn't mean the public will buy the product and everyone lives happily ever after. We know that is not a good scenario," says Barbara Herr Harthorn, Director and Principal Investigator of the National Science Foundation-funding Center for Nanotechnology in Society at the University of California, Santa Barbara (CNS-UCSB).

Harthorn is one of the authors of a study — "Anticipating the perceived risk of nanotechnologies" — appearing online Sept. 20 in the journal *Nature Nanotechnology*. It is based on data from 22 surveys conducted over the last decade.

Previous studies have found that new and unknown technologies such as biotechnology tend to be regarded as risky, but that's not the case for nanotechnology, according to this research. People who thought nanotechnology had more benefits than risks outnumbered those who perceived greater risks by 3 to 1 in this study. The 44 percent of people who didn't have an opinion either way surprised the researchers.

"You don't normally get that reluctance," says Terre Satterfield of the University of British Columbia in Canada, lead author of the study and a collaborator with CNS-UCSB.

It's important to study how people perceive risk, and not just expert assessments of actual risk, Herr Harthorn says, because it's "a much better way to understand how people are going to behave and respond."

"It's not true that if a technology has benefits it will automatically get accepted by the public," adds Milind Kandlikar of the University of British Columbia. He is also a collaborator with CNS-UCSB and a co-author of the study, along with Joseph Conti, a former graduate fellow with CNS-UCSB, and Christian Beaudrie of the University of British Columbia.

Public perceptions of risk depend on various demographic and cultural factors; for example, wealthy, well-educated white men tend to think of new technologies as less risky. Public opinion also is easily swayed by catastrophic events like the Chernobyl accident, which galvanized opposition to nuclear power, and by news like reports of deaths from Bovine spongiform encephalopathy (BSE) in Europe, or from severe

acute respiratory syndrome (SARS) or swine flu (the H1N1 virus).

"It's much easier to destroy trust than gain it," Satterfield says, so after an event like a nuclear meltdown or oil spill, leaders need to "take responsibility for any consequences quickly and clearly."

Because nanotechnology hasn't made big news, it offers researchers a chance to study how people judge new technology before controversy arises. "The future is yet to be written. Judgments could go either way," Satterfield says.

More information: "Anticipating the perceived risk of nanotechnologies" *Nature Nanotechnology*.

Source: University of California - Santa Barbara (news : web)